IBM INDUSTRIAL PRODUCTS

MEDIUM POWER DRIVER (MPD-1A) MODULE P/N 841552

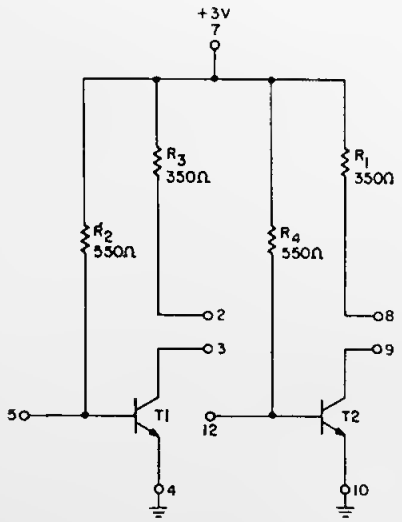
Functional Description

The Medium Power Driver MPD-1A module contoins two seporote Medium Power Drivers The Drivers ore designed to provide o fost, economicol woy of extending the fon-out of on AI or on AOI module by opproximotely o foctor of three. This would hove o useful opplicotion for driving o tronsmission line.

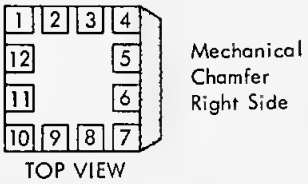
The "OR" function con be occomplished by dotting collectors (porollel connected collectors) with other circuits or modules. However, only one collector resistor is required.

Medium Power Driver MPD-1A inputs ore Pins 5 ond 12.

Schematic

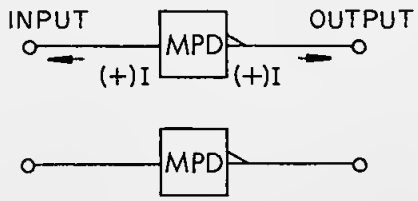


Terminal Configuration



Pins 1, 6 ond 11 Leove Open

Block Diagram



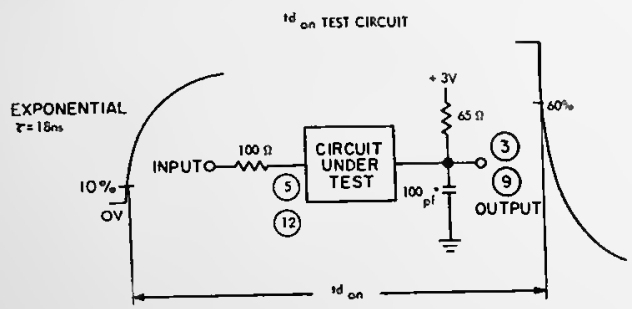
Maximum Ratings

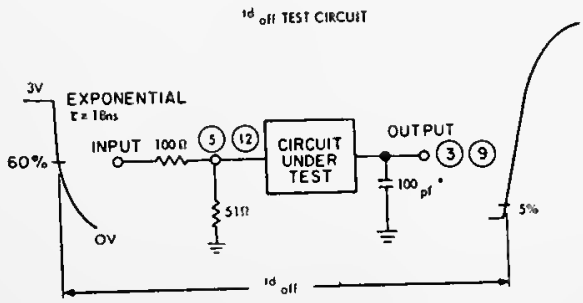
Input Voltage; must be biased through a resistor
Output Voltage; = 6V
I_E; = 56 Milliamps

(MPD-1A) Module Functional Tests

TESTS	TERMINAL CONDITIONS												°C	ADDITIONAL LOAD REQUIREMENTS	VARIABLE	LIMITS		UNITS
	1	2	3	4	5	6	7	8	9	10	11	12				MIN	MAX	
DC ON		V_{OUT}	V_{OUT}	GND	787Ω TO +2.88V		+2.88V						25 / 75	42.5 ma CURRENT INTO TERMINAL 2	V_{OUT}		+0.3 / +0.32	V
DC ON							+2.88V	V_{OUT}	V_{OUT}	GND		787Ω TO +2.88V	25 / 75	42.5 ma CURRENT INTO TERMINAL 8	V_{OUT}		+0.3 / +0.32	V
DC OFF		V_{OUT}	V_{OUT}	GND	+0.5V		+3.12V						25		V_{OUT}	+3.08		V
DC OFF							+3.12V	V_{OUT}	V_{OUT}	GND		+0.5V	25		V_{OUT}	+3.08		V
DC NOISE		V_{OUT}	V_{OUT}	GND	+0.58V		+3.12V						75		V_{OUT}	+1.80		V
DC NOISE							+3.12V	V_{OUT}	V_{OUT}	GND		+0.58V	75		V_{OUT}	+1.80		V
$AC_{t_{on}}$		V_{OUT}	100 pf CAP TO GND	GND	INPUT		+3.0V						25	65Ω RESISTOR TIED BETWEEN TERMS 2&7	t_{on}	1	14	ns
$AC_{t_{on}}$							+3.0V	V_{OUT}	100 pf CAP TO GND	GND		INPUT	25	65Ω RESISTOR TIED BETWEEN TERMS 8&7	t_{on}	1	14	ns
$AC_{t_{off}}$		V_{OUT}	100 pf CAP TO GND	GND	INPUT		+3.0V						25 / 75		t_{off}	8	41 / 59	ns
$AC_{t_{off}}$							+3.0V	V_{OUT}	100 pf CAP TO GND	GND		INPUT	25 / 75		t_{off}	8	41 / 59	ns

Test Waveforms





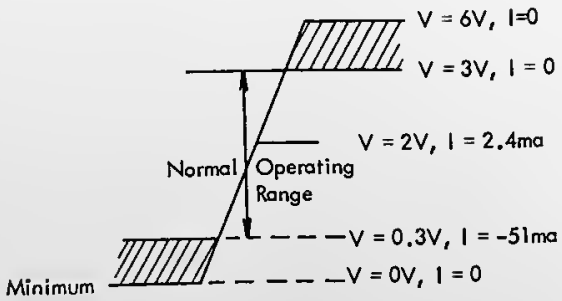
* Including Probe Capacitance

Input Requirements

Due to the special nature of this circuit the input voltage and current levels cannot be specified

The input driver module for the MPD should not drive any other module.

Output Specifications



Fan In

Must be driven from a current saurce, usuolly from a callector with a resistar returned to + V.

Fan Out

The total ovoiloble collector current from o MPD-1A is = 51mo.
51mo $I_R + N_1 K_1 + N_2 K_2 + ---$.

I_R = Current thraugh collector resistor

N_1 = Number of AI laads being driven

N_2 = No. of AOI loods being driven

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K_1 = 2.3mo, AI - 2A laading constont

K_2 = 3.0mo, AOI - 2A laading canstont

Ta dauble the Fon Out, the autput callectors ond inputs must be paralleled.

Maximum Power Supply Current Requirements (per circuit)

	ON	OFF
+6V	0	0
+3V	13mo	6mo
-3V	0	0

Maximum Power Dissipation (per circuit)

ON	OFF
59mo	17mw

Average Normal Power Dissipation $= \frac{\text{NOMINAL ON + NOMINAL OFF}}{2} = 33\text{mw}$

General Wiring Rules (For Printed Circuit Wire - 10 Mil Width Lines)

The moximum input line length shauld be less thon 6 inches. The tatol net length ot the autput shauld be less thon 60 inches unless longer delays con be talerated.